



INTERNATIONAL CONGRESS ON  
**PHYSIOTECHNOTHERAPY**

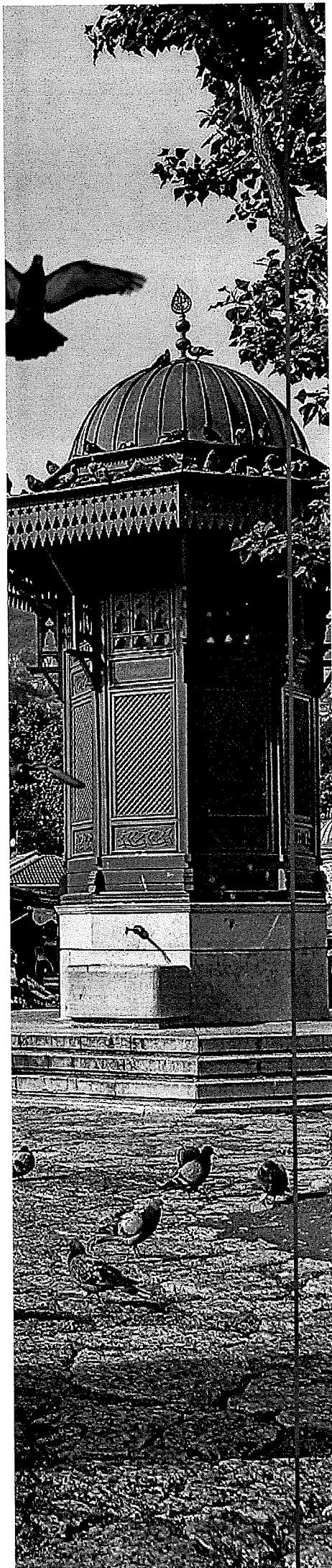


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ORAL PRESENTATIONS - 11 MAY 2018		
SESSION A	SESSION B	SESSION B
<b>SESSION III (12:00-13:00)</b>		
<b>CHAIRMAN: DEVRİM TARAKCI</b>	<b>CHAIRMAN: SEHER ÖZYÜREK</b>	<b>CHAIRMAN: S. NİLAY ARMAN</b>
377 - IS THERE A TIME DIFFERENCE BETWEEN ONSETS OF LATERAL AND MEDIAL HAMSTRING MUSCLES DURING GAIT IN PATIENTS WITH PATELLOFEMORAL PAIN COMPARED TO HEALTHY SUBJECTS?	373 - BASIC ELEMENTS AND METHODOLOGY IN RESEARCH AND DEVELOPMENT OF THE ASSISTIVE REHABILITATION TECHNOLOGIES	374 - THE IMMEDIATE EFFECTS OF MUSCLE ENERGY TECHNIQUE ON POSTERIOR SHOULDER TIGHTNESS FOR IMPROVING RANGE OF MOTION AND ISOKINETIC PERFORMANCE IN VOLLEYBALL PLAYERS
438 - IS ARM SWING AN EFFECTIVE FACTOR FOR GROUND REACTION FORCES AT JUVENILE IDIOPATHIC ARTHRITIS WITH AFFECTED UPPER EXTREMITY?: A CASE STUDY	400 - ROBOT-ASSISTED PHYSIOTHERAPY OF UPPER EXTREMITY - A LITERATURE REVIEW	375 - EFFECTS OF DIFFERENT EXERCISE APPLICATIONS ON FEMORAL CARTILAGE THICKNESS ULTRASONOGRAPHY IN KNEE OSTEOARTHRITIS
440 - INVESTIGATION OF THE RELATIONSHIP BETWEEN ARM SWING AND GROUND REACTION FORCES DURING WALKING: A CORRELATION STUDY	387 - THE SYNTHESIS OF LITERATURE ON TECHNOLOGY WITH EXERCISING IN BALANCE REHABILITATION	406 - IS BODY COMPOSITION, ULTRASONOGRAPHIC CROSS-SECTIONAL AREA AND ISOKINETIC STRENGTH CORRELATED?
451 - COMPARISON OF SATISFACTION OF PHYSIOTHERAPISTS WORKING IN DIFFERENT FIELDS IN TERMS OF TECHNOLOGICAL EQUIPMENT ACCESSIBILITY LEVELS	398 - EFFECTS OF EXERCISE-COGNITIVE ACTIVITY COMBINED TRAINING AND DUAL TASK TRAINING ON GAIT SPEED AND PREFRONTAL CORTEX ACTIVATION: A FNIRS STUDY	407 - RELIABILITY OF CYBEX NORM® ISOKINETIC SYSTEM IN MEASURING SHOULDER ISOKINETIC STRENGTH AND PROPRIOCEPTION
517 - FINGER ORTHOSSES DESIGN BY COMPUTER AIDED DESIGN PROGRAM FOR 3D PRINTING	419 - IS THE IPHONE A USEFUL TOOL FOR DETERMINING PHYSICAL ACTIVITY LEVEL?	404 - EFFECTS OF SHOULDER STABILIZATION EXERCISE ON UPPER EXTREME PROPRIOCEPTION AND HAND FUNCTIONS IN GERIATRIC INDIVIDUALS
508 - DETERMINATION OF UPPER EXTREMITY AND TRUNK KINEMATICS IN WASHING THE FACE ACTIVITY	437 - THE TEST-RETEST RELIABILITY OF THE SPINAL CURVATURE MEASUREMENT IN THE FRONTAL AND SAGITTAL PLANES WITH SPINAL MOUSE	411 - EFFECTS OF WHOLE BODY VIBRATION AT DIFFERENT FREQUENCIES ON GLUTEUS MEDIUS MUSCLE' EMG ACTIVITIES
X 464 - ESTIMATING OF BALANCE STATUS IN HEMIPARETICS: AN ARTIFICIAL NEURAL NETWORK IMPLEMENTATION	423 - ATTITUDES OF UNDERGRADUATE PHYSIOTHERAPY STUDENTS TOWARDS INFORMATION AND COMMUNICATION TECHNOLOGIES USE	509 - EFFECT OF SITTING HEIGHT ON MUSCLE ACTIVATION LEVELS OF LOWER EXTREMITY DURING SIT TO STAND
483 - EFFECT OF AGE, GENDER AND ANTHROPOMETRIC VARIABLES ON MORPHOLOGICAL AND MECHANICAL PROPERTIES OF FOOT INTRINSIC MUSCLES IN ASYMPTOMATIC INDIVIDUALS	433 - ATTITUDES OF PHYSIOTHERAPISTS TOWARDS INFORMATION AND COMMUNICATION TECHNOLOGIES UTILIZATION	526 - THE WEARABLE ASSISTIVE IOT SAMPLE FOR PHYSICAL DISABILITIES: INTERACTING WITH BENDING
507 - THE CORRELATION BETWEEN GRAVITY CENTER AND WAIST/HIP CIRCUMFERENCE RATIO	376 - DIAGNOSIS IN PHYSICAL THERAPY AND REHABILITATION WITH A ROBOTIC POINT OF VIEW	382 - IMMEDIATE EFFECT OF MULLIGAN TRACTION STRAIGHT LEG RAISE TECHNIQUE ON GAIT CHARACTERISTIC AND RANGE OF MOTION
	524 - IMPEDANCE CONTROL IN THERAPY ROBOTS	430 - DEVELOPMENT OF MOBILE LEARNING PLATFORM FOR CAREGIVERS OF CHILDREN WITH CEREBRAL PALSY
<b>SESSION IV (14:30 - 16:00)</b>		
<b>CHAIRMAN: NURAY YOZBATIRAN</b>	<b>CHAIRMAN: TOMRİS DUYMAZ</b>	<b>CHAIRMAN: ENDER AYVAT</b>
442 - RELIABILITY AND VALIDITY OF THE CANADIAN OCCUPATIONAL PERFORMANCE MEASURE IN PEOPLE WITH MULTIPLE SCLEROSIS	408 - THE EFFECT OF THE CONNECTIVE TISSUE MASSAGE ON AUTONOMIC FUNCTIONS OF THE HEMIPLEGIC PATIENTS	378 - CORRELATION OF BALANCE AND COORDINATION OF BODY COMPOSITION AND PHYSICAL ACTIVITY LEVELS IN HEALTHY YOUNG INDIVIDUALS
449 - THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY, CARDIORESPIRATORY ENDURANCE, ACTIVITY AND PARTICIPATION LIMITATIONS, AND QUALITY OF LIFE FOR ANTERIOR KNEE PAIN	399 - EFFECTS OF MASSAGE ON ANAEROBIC POWER AND JUMP HEIGHT	381 - EVALUATION OF CARDIOVASCULAR RESPONSES IN SEDANTER YOUNG ADULTS WITH SINGLE-SESSION MEDIUM AND STRONG DENSITY AEROBIC EXERCISES
414 - COMPARISON OF HAND FUNCTION BETWEEN CHILDREN WITH TYPE 1 DIABETES MELLITUS AND HEALTHY CHILDREN	390 - THE RELATIONSHIP BETWEEN SMARTPHONE, INTERNET ADDICTION AND MUSCULOSKELETAL PROBLEMS	425 - EFFECT OF SUSPENSION SYSTEM EXERCISES ON PAIN AND LIFE QUALITY IN PATIENTS WITH CHRONIC NECK PAIN: A PILOT STUDY
502 - INVESTIGATION OF IMMEDIATE EFFECT OF SCAPULA MOBILIZATION ON SHOULDER PROPRIOCEPTION IN SUBACROMIAL IMPINGEMENT SYNDROME	416 - THE EFFICACY OF DIFFERENT STRETCHING EXERCISES COMBINED WITH PRESSURE RELEASE TECHNIQUE ON LATENT TRIGGER POINTS IN THE PECTORALIS MINOR MUSCLE	422 - THE IMPACT OF KINESIOLOGY TAPING ON VOLLEYBALL SERVE SPEED
512 - AN OVERVIEW TO TECHNOLOGY-ASSISTED UPPER EXTREMITY REHABILITATION FOR CERVICAL SPINAL CORD INJURIES	420 - EXAMINATION THE RELATIONSHIP BETWEEN CHRONIC BACK PAIN, CHRONIC NECK PAIN AND SLEEP PROBLEMS IN DENTISTS AND STUDENTS OF DENTISTRY	522 - THE CORRELATION BETWEEN PHYSICAL ACTIVITY AND LOCOMOTOR FUNCTIONS IN HEALTHY ADULTS
421 - A PORTABLE MECHANICAL CHEST WALL OSCILLATOR	428 - EXERCISE CAPACITY, MUSCLE STRENGTH AND QUALITY OF LIFE IN PHYSICAL ACTIVE AND INACTIVE HEMATOPOIETIC STEM CELLS RECIPIENTS	513 - LOW BACK PAIN LEAD TO LOSS IN PROPRIOCEPTION SENSE OF TRUNK IN YOUNG INDIVIDUALS
410 - VIBRATORY SENSORY TRAINING DEVICE: A BIOMEDICAL INNOVATION		424 - THE LONG-TERM RESULTS OF THE LOWER EXTREMITY STRENGTHS AND SPATIO-TEMPORAL PARAMETERS OF GAIT IN SUBJECTS WITH ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION
19:30	<b>GALA DINNER (Only for BLUE and GREEN PARTICIPANTS ID HOLDERS) MEETING IN THE CONFERENCE HOTEL LOBBY</b>	

<b>PROGRAM OVERVIEW</b>	
<b>09.05.2018</b>	
	AIRPORT TRANSFERS (ONLY FOR BLUE AND GREEN PACKAGE ID HOLDERS)
15:00 - 21:00	SARAJEVO CITY TOUR - VISIT TO WAR (HOPE) TUNNEL (ONLY FOR BLUE PACKAGE ID HOLDERS)
19:30 - 20:30	DINNER (ONLY FOR BLUE PACKAGE ID HOLDERS)
<b>10.05.2018</b>	
07:00-08:00	BREAKFAST (ONLY FOR BLUE AND GREEN PACKAGE ID HOLDERS)
09:00 - 10:00	<b>REGISTRATION</b>
10:00 - 10:30	<b>OPENING CEREMONY</b>
10:30 - 12:30	<b>SESSION 1. IMAGING TECHNOLOGIES IN PHYSIOTHERAPY (CHAIRMAN: İNCİ YÜKSEL, ERKAN KAPLANOĞLU)</b>
	MÜGE YEMİŞÇİ ÖZKAN - THE FUTURE OF NEURORESTORATIVE THERAPIES
	BAHAR GÜNTEKİN - THE METHODOLOGY OF EEG-BRAIN DYNAMICS IN THE RESEARCH OF THE HEALTH SCIENCES
12:30-13:30	<b>ORAL PRESENTATIONS</b>
12:30-13:30	LUNCH (ALL THE PARTICIPANTS WITH TICKET)
13:30-15:00	<b>SESSION 2. WEARABLE TECHNOLOGIES IN PHYSIOTHERAPY (CHAIRMAN: ZUHAL KUNDURACILAR, KEZBAN BAYRAMLAR)</b>
	ERKAN KAPLANOĞLU - MECHATRONIC DESIGNS AND SENSOR SYSTEMS IN WEARABLE TECHNOLOGIES FOR REHABILITATION
	ERDEM ERDEMİR - ADVANCES IN HEALTHCARE TECHNOLOGY: WEARABLES AND MACHINE LEARNING
	EDA TONGA - PHYSIOTHERAPY AND REHABILITATION APPROACH IN WEARABLE TECHNOLOGIES
15:00-15:30	COFFEE BREAK
15:30-17:00	<b>SESSION 3. VIRTUAL AND AUGMENTED TECHNOLOGY (CHAIRMAN: ELA TARAKÇI, Aysel YILDIZ)</b>
	YUSUF SİNAN AKGÜL - VIRTUAL/AUGMENTED REALITY BASED TECHNOLOGY DEVELOPMENT FOR PHYSICAL THERAPY
	FARZİN HAJEBRAHİMİ - EVIDENCE BASED VIRTUAL AND AUGMENTED REALITY IN REHABILITATION
	MİRAY BUDAK - THE RELATIONSHIP BETWEEN VIRTUAL REALITY AND COGNITIVE FUNCTIONS
	S. NİLAY ARMAN - VIRTUAL REALITY IN CLINICAL PRACTICE
17:00 - 18:00	<b>ORAL PRESENTATIONS</b>
19:30 - 20:30	DINNER IN THE HOTEL RESTAURANT (ONLY FOR BLUE AND GREEN PACKAGE ID HOLDERS)
<b>11.05.2018</b>	
07:00 - 08:00	BREAKFAST (ONLY FOR BLUE AND GREEN PACKAGE ID HOLDERS)
09:00 - 10:30	<b>SESSION 4. ROBOTIC REHABILITATION (CHAIRMAN: SİBEL AKSU YILDIRIM, ERHAN AKDOĞAN)</b>
	NURAY YOZBATIRAN - NON-INVASIVE CORTICAL AND SPINAL STIMULATION WITH ROBOTIC-ASSISTED REHABILITATION OF UPPER LIMB MOVEMENTS IN INCOMPLETE SPINAL CORD INJURY
	VOLKAN PATOĞLU - DESIGN AND CONTROL OF SELF-ALIGNING EXOSKELETONS FOR ROBOT-ASSISTED REHABILITATION
10:30 - 11:00	COFFEE BREAK
10:30 - 11:00	<b>SESSION 6. PROJECT ON PHYSIOTECHNOTHERAPY &amp; STARTUP ZONE - TECH POINT</b>
11:00 - 12:00	<b>SESSION 5. ASSISTIVE TECHNOLOGY (CHAIRMAN: BÜLENT ELBASAN, HÜLYA ŞİŞLİ)</b>
	YELİZ PRIOR - USE OF DIGITAL HEALTH TECHNOLOGY TO ENHANCE HEALTH AND QUALITY OF LIFE OUTCOMES
	ERDEM DEMİR - THE USE OF EMG IN REHABILITATION: HOW AND WHY DO WE ASSESS?
12:00 - 13:00	<b>ORAL PRESENTATIONS</b>
12:30 - 13:30	LUNCH (ALL THE PARTICIPANTS WITH TICKET)
13:30 - 14:30	<b>SESSION 7. WORKSHOPS</b>
	WORKSHOPS - 1. ULTRASONOGRAPHIC IMAGING - SEHER ÖZYÜREK, İLKŞAN DEMİRBÜKEN
	WORKSHOPS - 2. TECHNOLOGICAL PRODUCT TESTING AND PATENTING PROCESSES - ONUR AYDOĞDU, EREN TİMURTAŞ
	WORKSHOPS - 3. START UP TIPS - SİBEL AKSU YILDIRIM, MUHAMMED KILIÇ
14:30 - 16:00	<b>ORAL PRESENTATIONS</b>
19:30 - 22:00	<b>GALA DINNER (ONLY FOR BLUE AND GREEN ORANGE PARTICIPANTS ID HOLDERS) MEETING IN THE CONFERENCE HOTEL LOBBY</b>
<b>12.05.2018</b>	
<b>SOCIAL CULTURAL TOUR (MOSTAR - BLAGAJ - POCITELJ TRIPS) ONLY FOR BLUE PACKAGE ID HOLDERS</b>	
08:30	DEPARTURE TO MOSTAR
10:30	VISIT TO POCITEL AND HISTORICAL PLACES
12:00	VISIT TO BLAGAJ DERVISH LODGE WHICH IS THE FIRST LODGE OF SARAJEVO
13:00	LUNCH IN BLAGAJ DERVISH LODGE
14:30	VISIT TO MOSTAR BRIDGE AND KOSKA MEHMET PASA MOSQUE
19:00	DINER AT JABLANICA
20:00	DEPARTURE TO SARAJEVO
21:30	ARRIVAL TO SARAJEVO
<b>13.05.2018</b>	
08:30	BREAKFAST (ONLY FOR BLUE AND GREEN PACKAGE ID HOLDERS)
	AIRPORT TRANSFERS (ONLY FOR BLUE AND GREEN PACKAGE ID HOLDERS)



INTERNATIONAL CONGRESS ON

# PHYSIOTECHNOTHERAPY



## 1ST INTERNATIONAL CONGRESS ON PHYSIOTECHNOTHERAPY (ICPTT)

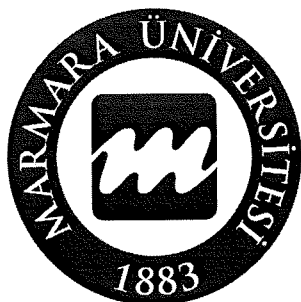
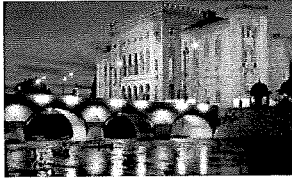
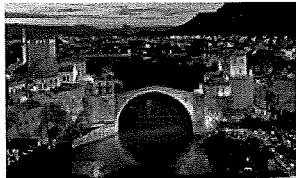
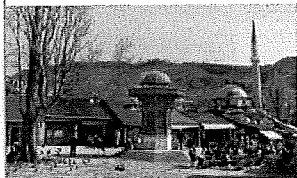
## PROGRAM SCHEDULE

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May 09-13 2018 Sarajevo Bosnia and Herzegovina



- YAVUZ YAKUT (HASAN KALYONCU UNIVERSITY - TURKEY)
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- YUSUF SİNAN AKGÜL (GEBZE TECHNICAL UNIVERSITY - TURKEY)
- ZELİHA CANDAN ALGUN (İSTANBUL MEDİPOL UNIVERSITY - TURKEY)
- ZÜBEYİR SARI (MARMARA UNIVERSITY - TURKEY)



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INTERNATIONAL CONGRESS ON  
**PHYSIOTECHNOTHERAPY**

**ICPTT 2018**

09-13 MAY

SARAJEVO, BOSNIA AND HERZEGOVINA

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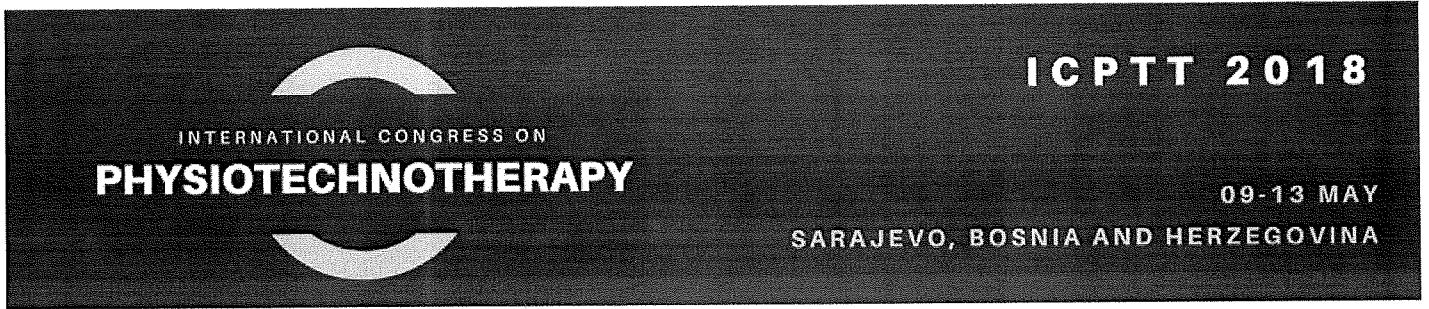
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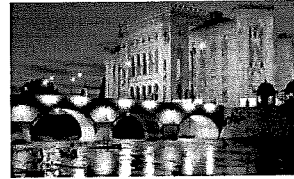
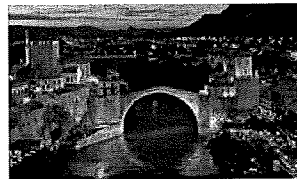
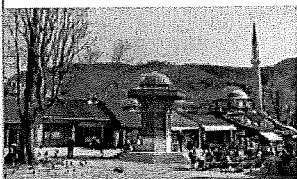
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# CERTIFICATE OF ATTENDANCE


THIS CERTIFICATE IS AWARDED TO

**GÜZİN KARA**

In recognition for active participation in the

**1ST INTERNATIONAL CONGRESS ON PHYSIOTECHNOTHERAPY (ICPTT)**

Held on May 09-13 2018 in Sarajevo, Bosnia and Herzegovina

  
Assoc. Prof. Dr. Zubeyir Sari  
Chair of the Conference



### Results

- The designed ANN included five inputs and one output.
  - The number of hidden layers of this ANN with a single hidden layer has been tested from one to ten.
  - The data set was randomly divided into learning (80%) and evaluation (20%) sets.
  - The results obtained from this study showed that:
    - ANN estimations were in good agreement with the measured BEST test total score as seen in Figure 1.
    - ANN estimations were better than that of MLR estimations as seen in Figure 2.
- (Root mean squared error-RMSE- for ANN=3.86, for MLR=6.97).

Figure 1. Measured BESTest Scores, ANN Estimated Scores and ANN Error

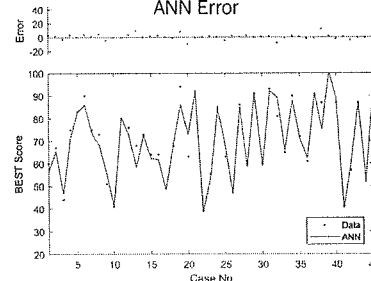
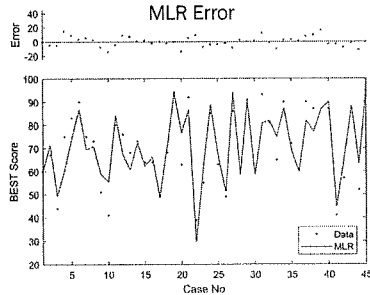



Figure 2. Measured BESTest Scores, MLR Estimated Scores and MLR Error



### Conclusion

- It is found that modeling by ANN is a promising and useful tool to estimate the balance status of hemiparetics.
- Predicting balance status of hemiparetics makes contribution to plan the most suitable rehabilitation program providing useful and better suggestions to establish home modification and relevant exercise program.





**ESTIMATION OF BALANCE STATUS IN  
HEMIPARETICS: AN ARTIFICIAL NEURAL NETWORK  
IMPLEMENTATION**

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## Purpose

- The aim of the study is to estimate the balance status of hemiparetics using Artificial Neural Networks (ANN).

## Methods

- Balance Evaluation Systems Test (BESTest)** was used to evaluate balance status of the participants.

- 45 (F:14,M:31)** hemiparetics were included in the study performed at Pamukkale University in the Neurological Rehabilitation Outpatient Department.

- Functional Reach Test (FRT), One Leg Standing Test (OLST)** (left and right side), **6 Meter Timed Walk (6MTW), Timed Up&Go Test (TUG)** were used to predict the BESTest total score.

- IBM SPSS Statistics 21** was used to analyze descriptive statistics.
- Matlab Neural Network Toolbox** was used to build ANN and Multiple Linear Regression (MLR) models.

## Results

- Mean age of the sample was **54.24±8.19 years** (F:14,M:31).
- Medical statuses of hemiparetics are given in Table 1.
- Descriptives of the tests used for ANN are given in Table 2.

Table 1. Medical Statuses of Hemiparetics

	Min-Max	Mean±SD
Duration of the Disease (month)	2-384	43.40±59.58
	n	%
Aetiology of Cerebral Lesion		
CVA-Ichemia	35	77.8
CVA-Haemorrhage	8	17.8
Intracranial Mass	1	2.2
Head Trauma	1	2.2
Affected Hemisphere		
Right	25	55.6
Left	20	44.4
Dominant Hand		
Right	42	93.3
Left	3	6.7

CVA: Cerebrovascular Accident

Table 2. Descriptives of Tests Used for ANN

	Min-Max	Mean±SD
FRT(cm)	12.00-39.00	26.99±7.12
OLST(sec)		
Left side	0.00-30.87	12.23±13.23
Right side	0.00-30.37	11.44±10.71
6MTW(sec)	4.18-59.91	12.86±10.44
TUG(sec)	6.31-80.00	18.77±14.01
BESTest Total Score	39.00-103.00	71.11±16.91

ANN: Artificial Neural Network, FRT: Functional Reach Test, OLST: One Leg Standing Test, 6MTW: 6 Meter Timed Walk, TUG: Timed Up&Go Test, BESTest: Balance Evaluation Systems Test.

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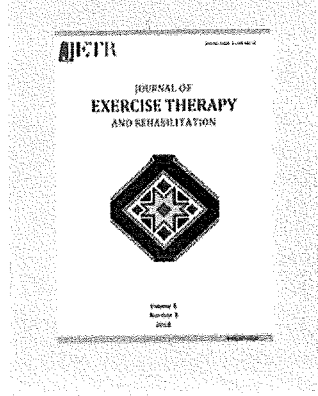


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### Bilgilendirme

"Journal of Exercise Therapy and Rehabilitation"  
**EBSCOhost, Google Scholar ve Directory of Research Journal Indexing** isimli indekslerde yer almaktadır.

Journal of Exercise Therapy and Rehabilitation (JETR), fizyoterapi ve rehabilitasyon, spor ve egzersiz, ve odyoloji, konuşma terapisi, iş-uyraşı terapisini içeren diğer sağlık disiplinlerinin yanı sıra egzersiz fizyolojisi, beslenme ve çocuk gelişimi alanlarında İngilizce ve Türkçe vaka çalışmaları ile birlikte araştırma ve derleme makalelerini yayınlamaktadır.

Journal of Exercise Therapy and Rehabilitation (JETR), yılda üç kez, Nisan, Ağustos ve Aralık aylarında yayınlanmaktadır.

### 2018 Cilt 5, Ek Sayı 2

1. Bildiri Özetleri – I. Uluslararası Fizyoteknoterapi Kongresi ([http://www.jetr.org.tr/wp-content/uploads/jetr\\_2018sup\\_2.pdf](http://www.jetr.org.tr/wp-content/uploads/jetr_2018sup_2.pdf))

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### 2018 Cilt 5, Sayı 3

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